HEPARINIZATION TIME EFFECT IN *Staphylococcus epidermidis* ADHESION TO SILICONE

Cláudia Sousa, Pilar Teixeira, Rosário Oliveira*
Centro de Engenharia Biológica, Universidade do Minho, Campus de Gualtar, 4710-057Braga, Portugal

Staphylococcus epidermidis is a coagulase-negative staphylococcus (CNS) that often colonizes the skin and mucous membranes of the human body, representing the major part of its normal microflora. However, these staphylococci have emerged in the last years as major nosocomial pathogens associated with infections of implanted medical devices such as catheters, due to their capacity to adhere and to form biofilms on solid surfaces.
In order to try to reduce the bacterial adhesion and to improve biocompatibility of indwelling medical devices, several approaches, such as various types of surface modification of the biomaterial, have been employed. The immobilization of specific biological molecules on the materials surface, like heparin, albumin and urokinase, as been one of the most promising strategies. Heparin is a proteoglycan with powerful anticoagulant activity, normally used to minimize thrombus formation and to extend the duration of catheter use. The influence of modified surface hydrophobicity is yet poorly understood and subject of current investigation.
The main objective of this work was the evaluation of the effect of silicone surface modification by different times of heparinization (2 and 24 hours) on *Staphylococcus epidermidis* (strains 9142-M10, 9142 and IE186) adhesion. Adhesion assays were performed in a static model, in which silicone squares of 2cm x 2cm were immersed in the bacterial suspension for 2 hours, in batch mode. For enumeration of adherent bacterial cells, the silicone slides were stained with DAPI 0.01% and an epifluorescence microscope coupled to a 3CCD video camera was used for image observation. Our results point to a significative ($p<0.05$) decrease in bacterial adhesion after heparinization. Nevertheless no significant differences were obtained when comparing the two times in study suggesting that heparinization time has small influence in the effectiveness of inhibition of bacterial adhesion by heparin.